Exhibit A

Bennet Omalu
PATHOLOGY

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Autopsy and Anatomic Pathology
Clinical Pathology and Toxicology
Forensic Pathology

Neuropathology
Epidemiology
Medico-Legal Consultations

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October 18, 2025

Dear Mr. Galipo,

Re: Benjamin Edward Huan Ming Chin, Deceased
Medico-Legal Report

Summary of Education, Training and Experience

I completed medical school in 1990 at the University of Nigeria, Enugu, Nigeria. Upon graduating from medical school, I completed a one-year clinical housemanship at the University of Nigeria Teaching Hospital in the fields of Pediatrics, Internal Medicine, General Surgery, Obstetrics, and Gynecology. After housemanship, I worked as an emergency room physician at a university hospital in Nigeria for approximately three years. I sat for and passed my United States Medical Licensing Examinations [USMLE] while I worked as an emergency room physician. I came to the United States in 1994 through a World Health Organization scholarship to become a visiting research scholar for eight months at the Department of Epidemiology, Graduate School of Public Health, University of Washington, Seattle, Washington.

In 1995, I proceeded to the College of Physicians and Surgeons of Columbia University, New York, at Harlem Hospital Center, to complete residency training in Anatomic Pathology and Clinical Pathology. In 1999, I proceeded to the University of Pittsburgh in Pittsburgh, Pennsylvania, to complete residency training in Forensic Pathology and Neuropathology. I hold four board certifications in Anatomic Pathology, Clinical Pathology, Forensic Pathology and Neuropathology. I also hold a Masters in Public Health [MPH] in Epidemiology from the Graduate School of Public Health at the University of Pittsburgh in Pittsburgh, Pennsylvania. I also hold a Masters in Business Administration [MBA] degree from the Tepper School of Business at Carnegie Mellon University in Pittsburgh, Pennsylvania, one of the leading business schools in the world. I am a Certified Physician Executive and an Honorary Fellow of the American Association of Physician Leadership [AAPL]. I also hold a fifth board certification in Medical Management from the AAPL. I am currently licensed to practice Medicine and Surgery in the State of California.

I am currently the President and Medical Director of Bennet Omalu Pathology [BOP], a California medico-legal consulting firm, and a Clinical Professor at the Department of Medical

Pathology and Laboratory Medicine, University of California, Davis. In my capacity as the Medical Director of BOP, I am a consulting Forensic Pathologist and Neuropathologist to many hospitals in central California and to several counties in northern California. There are less than a few dozen practicing Forensic Pathologists-Neuropathologists in the United States who are board-certified in both Forensic Pathology and Neuropathology.

For over 25 years, I have been involved in over 15,000 death and injury investigations in my career as a Forensic Pathologist and Neuropathologist, which began in 1999. I have personally conducted and performed over 13,000 autopsies and death investigations and examined over 15,000 brain tissue specimens. I also perform trauma pattern analysis in both living patients and deceased patients to determine causes and mechanisms of sustenance of injuries and death. I am also involved in the evaluation of living victims of all types of injuries and trauma, including, but not limited to, victims of assault, traumatic falls, industrial and accidental injuries, medical complications and misadventures, rape, child abuse, and sports-related injuries.

I have performed autopsies and examined the medical records, occupational histories, exposure histories, autopsy tissues, and biopsy tissues of hundreds of living and deceased patients who had been occupationally exposed to asbestos, solvents, and other types of toxic agents. I have performed differential diagnosis, made disease diagnosis, and determined medical causation of diseases involving all types of occupational exposures, including asbestos-related diseases and malignancies like malignant mesothelioma.

I have been consulted and retained as an expert witness in 2,000-3,000 cases involving all types of medico-legal cases across all jurisdictions in the United States, including federal, state, county, and municipal courts and arbitration panels, in both civil and criminal cases, for the plaintiff, defense, district attorneys, and public defenders. I have been involved as an expert witness in complex class action and industrial lawsuits involving thousands of individuals and major corporations.

My areas of interest and focus include brain pathophysiology, brain injuries, and brain trauma, in both living and deceased patients. I identified Chronic Traumatic Encephalopathy [CTE] in a retired football player when I performed an autopsy and examined the brain of Mike Webster in 2002. Subsequently, I identified CTE in other high-impact, high-contact sports athletes and in military veterans suffering from Post-Traumatic Stress Disorder [PTSD]. Since 2002, CTE has received international attention from the sports industry, sports medicine, and neuroscience. My work has been featured extensively in all media platforms across the world. My work and life were featured in a major Hollywood film, *Concussion*, released in December 2015 by Sony Motion Pictures, in which the renowned actor, Will Smith, played me as Dr. Omalu. Several New York Times best-selling books have also been published on my life and work, including *The League of Denial* and *Concussion*. I have published several books including my memoir, *Truth Doesn't Have a Side*, which was published in August 2017. My latest book, *Brain Damage in Contact Sports,* was published in February 2018. I have published extensively in the medical and scientific literature, authoring many scientific papers and book chapters.

I have received three honorary PhD degrees from two universities in the United States and from the Royal College of Surgeons of Ireland in recognition of my work and expertise. I have also received numerous awards from across the world in recognition of my work and expertise in both living and deceased patients. I have received the "Distinguished Service Award" from the American Medical Association [AMA], which is the most prestigious award of the AMA. I have

been honored by the United States Congress, and I have appeared on multiple occasions before committees of the United States Congress and committees of State Legislatures across the Unites States, advising them on matters relating to trauma. In 2019 and 2020, I was appointed to the Traumatic Brain Injury Board of the State of California to advise the state on matters relating to traumatic brain injuries.

Since 1999, I have testified as an expert witness in matters relating to all types of injuries and deaths in over 800 court proceedings across the United States. I have attached a copy of my curriculum vitae, which enumerates my body of work and experience in greater detail. The cases I have testified in, beginning in 2009, are enumerated at the end of my curriculum vitae.

Pursuant upon your request, I have reviewed the following materials sent to me on the case of Benjamin Chin, Deceased:

1. Autopsy Report from Department of Medical Examiner Coroner, County of Los Angeles & Laboratory Analysis Summary Report.
2. Autopsy photographs.
3. Benjamin Chin's Medical records from Pomona Valley Hospital Medical Center.
4. Police incident report and supplemental report.
5. Count of Los Angeles Sheriff's Department Supplemental Report.
6. Confidential Body Cam Axon X60A16554 (06.19.2023)
7. Confidential Body Cam Axon X60A1078T (06.19.2023)
8. Interview transcript of Deputy Hector Vasquez.
9. Interview transcript of Deputy Marisol Barajas.
10. First Amended Complaint for Damages.
11. Deposition transcript of Hector Vazquez
12. Deposition Transcript of Marisol Barajas

In order to perform and apply a valid differential diagnosis method including but not limited to causation criteria[1] analysis[1], Central Limit Theorem analysis and Clinico-Pathologic Correlation analysis, on this case, I had to review, document, and analyze the materials sent to me on the case in considerable depth and detail. Such differential diagnosis and review would form the foundation for my case-specific and general causation opinions in this case.

Brief Summary of Prevailing Forensic Scenario[2,3]

Benjamin Chin was born on January 6, 1993. On June 19, 2023, at the age of 30 years, he was shot by police officers and sustained gunshot wounds. He was subsequently transported to Pomona Valley Hospital, where he succumbed to his injuries despite surgical interventions and resuscitative measures. His autopsy report stated that he died as a result of multiple gunshot wound injuries. The manner of his death was determined to be a homicide.

[1] These are causation criteria that long existed prior to Sir Hill for the purposes of differentia diagnosis. However, he summarized some of them in a speech that he gave in 1965. Since then, some of these criteria applied to the method of differential diagnosis became known as the Bradford Hill criteria. However, they existed and were in use prior to Sir Hill's speech.

[2] This section of the report should not be used to establish the facts in this case and is not intended to be used to establish the facts in this case.

[3] There are video clips that were sent on this case that in part documented the prevailing terminal forensic scenario in this case.

Deputy Barajas was driving southbound on Diamond Bar Boulevard when she observed Benjamin Chin walking northbound in the number 1 southbound lane. She stopped and exited her vehicle and drew her firearm, pointing it at Benjamin Chin and giving him commands to drop the gun. As Benjamin Chin walked in a slow, steady pace north in the number 1 southbound lane, Deputy Barajas fired one shot, which appeared to briefly stop Benjamin Chin. Benjamin Chin then continued his walk north in the number 1 southbound lane.

Detective Vasquez approached from the sidewalk Diamond Bar Boulevard and ordered Benjamin Chin to drop the rifle, but he continued to walk north in the number 1 southbound lane of Diamond Bar Boulevard at which time Detective Vazquez fired one shot at the left backside of Benjamin Chin. Benjamin Chin continued to walk north in the number one southbound lane and Deputy Barajas fired two additional shots at Benjamin Chin, followed by Detective Vazquez firing an additional shot. Benjamin Chin began to slowly go to the ground after Deputy Barajas's second and third shot and finally dropped to the ground after Detective Vazquez's second shot. The sequence of the shots and the body positioning during the shots was captured on video. It appears that at the time of the final shot, Benjamin Chin was bent over and struck in the back, which correlates to gunshot wound #2 in the Autopsy Report. Afterward, a team of deputies approached Benjamin Chin and handcuffed him without further incident.

The video clips indicate that Benjamin Chin was shot at approximately 11:45 a.m. on June 19, 2023. Officers approached and reached him at approximately 11:47 a.m. during which he was lying on the ground and was moving his head and neck.

Medical Records from Pomona Valley Hospital:

06/19/2023:

Benjamin Chin was admitted into the emergency room (ER) via ambulance at approximately 11:59 a.m. with multiple gunshot wounds to the abdomen and chest. There were gunshot wounds in his right upper and lower abdominal quadrants, right lower chest, right hip, and right posterior flank. He was unresponsive on arrival with a Glasgow Coma Score (GCS) of 3 and a weak carotid pulse. While intubation was being attempted, he lost his pulse completely, and resuscitative thoracostomy was immediately performed with Clamshell. A right internal jugular cordis was placed, and the aorta cross clamped with a return of his pulses. Massive transfusion protocol (MTP) was started, Tranexamic acid (TXA) was given, and he was immediately taken to the operating room for exploration by Dr. Gurney.

Intraoperatively, Benjamin Chin was found with a Grade V liver laceration and right renal laceration with active hemorrhage. He had a right nephrectomy, right hepatorrhaphy with partial right hepatectomy, bilateral chest tube placement, and Abthera wound vacuum-assisted closure (VAC) placement. Intraoperatively, he was transfused a total of eighteen units of packed red blood cells, eighteen units of fresh frozen plasma, three units of platelets, and two units of cryoprecipitate. Abdominal X-ray showed multiple lap sponge markers over the right upper quadrant of the abdomen. Chest X-ray (CXR) showed tubes and lines in place.

After the surgery, he was taken to the trauma intensive care unit (TICU). Despite further resuscitation at the TICU, Benjamin Chin continued to require blood products and pressor and was taken back to the operating room for re-exploration. Intraoperatively, he was found to have ischemic colon and small bowel with thrombosed mesenteric vessels. Consequently, he had a subtotal colectomy and small bowel resection. However, his coagulopathy could not be controlled, so his abdomen was packed, and temporary abdominal and thoracic dressings were

placed. He was taken back to the TICU in an unstable critical condition. At the TICU, he had more transfusions and received multiple pressor but eventually went into cardiac arrest. He had several rounds of advanced cardiac life support (ACLS) with no return of spontaneous circulation and was subsequently pronounced dead at 11:09 p.m. by Dr. Gurney.

A clinical follow-up note by Dr. Gurney at 11:35 p.m. on 06/19/2023 states the vital signs and measurements as follows:
T: 35.6 °C (Axillary) TMIN: 35.6 °C (Axillary) TMAX: 36.3 °C (Axillary) HR: 126 RR: 28 BP: 48/32 BP: 23/19(Line) Sp02: 87% HT: 172 cm WT: 65.77 kg

Surgical pathology report of the liver, right kidney, small bowel, ascending, and descending colon showed a benign liver parenchyma with tissue disruption and focal hemorrhages, consistent with trauma. There was a benign renal parenchyma with tissue disruption and focal hemorrhages, consistent with trauma. There was benign small bowel intestinal mucosa with ischemic changes, marked submucosal hemorrhage, and perforation. The ascending colon showed benign colonic tissue with ischemic changes, marked submucosal hemorrhage, and perforation. There were reactive changes and fibrous obliteration of the tip of the appendix. Fragments of the liver parenchyma demonstrated vascular congestion. There was no identified malignancy in the four lymph nodes. No dysplasia or malignancy was identified in the ascending colon. The descending colonic tissue showed focal ischemic changes, submucosal vascular congestion, and hemorrhage. The omentum showed marked vascular congestion, and hemorrhage.

Autopsy:
A full autopsy was performed on the body of Benjamin Chin on June 28, 2023, at the Department of Medical Examiner-Coroner by Dr. Paul V. Gliniecki, Deputy Medical Examiner. Dr. Gliniecki opined that Benjamin Chin, a 30-year-old Asian male, died as a result of multiple gunshot wound injuries. Gunshot wound #1 was a significant contributory factor. The manner of his death was determined to be a homicide.

At autopsy, Benjamin Chin weighed 117 pounds and measured 69 inches.

Dr. Gliniecki described the following evidence of trauma:

<u>Gunshot wound #1 (Gunshot wound to the abdomen):</u>
There was an entrance gunshot wound on the right suprapubic region and the right mid lower abdomen. The wound measured 5/8 inches horizontal x ½ inch (vertical) with a ¼-inch horizontal x 5/8-inch vertical abrasion collarette at the 3 o'clock axis, 3/32 inches wide at the 6 o'clock axis, 1/16 inches wide at the 12 o'clock axis, and 1/32 inches wide at the 9 o'clock axis. The wound was centered 2-1/2 inches to the right of the anterior midline. The wound had a skin tag with the base at the 8 o'clock axis and the apices at the 2 o'clock axis, 3/8-inch x 1/8 inch in maximal diameter, diagonally with the apices at the 2 o'clock axis. The wound was centered 31-1/2 inches from the top of the head and 38-1/2 inches above the right heel.

There was a semicircular exit wound on the right lateral hip, 7/8 inches (diagonal) x 3/8 inches wide, with a skin tag at the seven to eight axis, approximately ¾ inches x 3/8 inch in maximal diameter, with an abrasion collarette. The wound was oriented at the 10 o'clock axis. There was an abrasion collarette 1/32 inches wide at the 3 o'clock axis, 1/8 inches at the 12 o'clock axis, and 1/8 inches wide at the 6 o'clock axis. The wound was centered 8-1/2 inches to the right along the

contour of the body or 6 inches to the perpendicular right and centered approximately 38 inches above the right heel and 32 inches from the top of the head. There was a 5-inche (horizontal) x 7-inche (vertical) surrounding red contusion. No bullet was recovered. There was minute fragment debris along the wound track path noted on X-rays without evidence of residual larger fragments or core.
The wound track passed from left to right, downwards (ten-degree angle), and front to back[4] (forty-five-degree angle).
The range of fire was indeterminate.

-Course, structures perforated, and trauma caused by gunshot wound #1:

- Skin and superficial fascia exhibited perforation, loss of substance, and a focal hemorrhage
- External abdominal oblique muscle and fascia, internal abdominal oblique muscle and fascia, and transversus abdominis muscle and fascia exhibited perforation, loss of substance, and focal hemorrhage.
- Peritoneum exhibited perforation, loss of substance, and focal hemorrhage.
- The bone (iliac crest) exhibited a fracture and loss of substance along the bullet track path.
- The Iliac muscle and fascia exhibited laceration, loss of substance, and focal hemorrhage.
- The tensor fascia lata muscle and fascia exhibited laceration, loss of substance, and focal hemorrhage.
- Superficial fascia and skin exhibited perforation, loss of substance, and focal dermal hemorrhage.
- Bullet exit

Note: This wound was considered contributory to the death

<u>Gunshot wound #2 (Gunshot wound to the back):</u>
There was a ½-inch (horizontal) x 3/8 inches (vertical) oval irregular entry wound on the mid-lower lumbar region. The wound was centered 1-inch to the right of the posterior vertical midline and 28-1/2 inches from the top of the head and 40-1/2 inches above the right heel. There was no gross visible soot or stippling on the surrounding skin. There was an eccentric abrasion collarette, 1/8-inch wide at the 10 o'clock axis, 3/16 inches wide at the 9 o'clock axis, 3/16 inches wide at the 8 o'clock axis, with a 1/8-inch abrasion collarette at the 12 o'clock, 3 o'clock, and 6 o'clock axis.

There was a ¾ inches (horizontal) x ½ inch (vertical) irregular exit wound located on the right upper abdominal region. The wound had an eccentric abrasion collarette 3/16 inches x 3/16 inches wide at the 9 o'clock axis, 5/16 inches x 5/16 inches abrasion laceration at the 3 o'clock axis, and a ¾-inche (horizontal) x ½-inch (vertical) skin tag at the lower margin. The wound was centered 4-1/2 inches to the right of the anterior midline, 23 inches from the top of the head, and 47-1/2 inches above the right heel. There was a surrounding red contusion, 9 inches (horizontal) x 5 inches (vertical) red coloration.
No bullet was recovered.
The wound track passed from left to right (forty-five-degree angle), upwards, and back to front (forty-five-degree angle)[5].
The range of fire was indeterminate.

[4] Backward, Downward and Rightward
[5] Forward, Upward and Rightward

-Course, structures perforated, and trauma caused by gunshot wound #2:
- The skin and superficial fascia exhibited perforation, loss of substance, and focal hemorrhage
- Erector spinae muscle and fascia exhibited perforation, loss of substance, and focal hemorrhage.
- L2 and L3 lateral processes, lumbar vertebrae exhibited fracture, loss of substance, and focal hemorrhage.
- The psoas muscle and fascia exhibited perforation, loss of substance, and focal hemorrhage.
- The right lobe of the liver exhibited perforation, loss of substance, and focal hemorrhage. The laceration measured 20 x 9 x 8 cm in maximal diameter.
- The diaphragm exhibited perforation, loss of substance, and focal hemorrhage.
- The peritoneum exhibited perforation, loss of substance, and focal hemorrhage.
- Transversus abdominis muscle and fascia, internal abdominal oblique muscle and fascia, and external abdominal oblique muscle and fascia exhibited perforation, loss of substance, and focal hemorrhage.
- The upper abdominal wall superficial fascia and skin exhibited perforation, loss of substance, and dermal hemorrhage.
- Bullet exit.

Note:

- As a result of this trauma, there was an extensive blood accumulation with multiple cloth sponges soaked with red blood.
- There was approximately 300 mL of bloody fluid in the right chest cavity. There was additional blood loss at that time and subsequently after at the scene, during medical and surgical therapeutic intervention, and additional loss during processing of the body and photography at the Department of Coroner, Los Angeles Forensic Science Center.
- The gunshot injuries described above showed a small, minute retained fragment density along the wound track path. The fragments were too small to recover. There were no large projectile fragments, copper jackets, or other identifying materials. The gunshot wounds were non-specific and could represent a shot gun bullet-type injury.
- The wound was rapidly fatal due to liver injury.

Dr. Gliniecki described other evidence of non-specific trauma:

- There was a non-specific light red abrasion contusion on the posterior left elbow and measured ½ inch (horizontal) x ¼ inch (vertical) x 1-1/4 inches x 3/8 inches in maximal diameter, respectively.
- There was a non-specific dark red abrasion contusion on the right upper chest (in the pectoral region) that measured 1-inch (diagonal) x ½ inch wide, centered 17 inches from the top of the head and 53-1/2 inches above the right heel.
- There was a non-specific red abrasion contusion on the posterior right elbow that measured 3/8 inches (horizontal) x ¼ inches, 1-inch (horizontal) x ½ inch (vertical), 1-inch (vertical) x 5/16 inches in maximal diameter, respectively.
- There was a non-specific red abrasion contusion on the left anterior knee that measured ½ inch x ¼ inch (vertical), centered 18-1/2 inches above the heel and centered midline.
- There was a non-specific healed scar above the right knee that measured ½ inch (vertical) x 1/16 inch wide.
- On the posterior right proximal interphalangeal joint was a 5/16 inches x 3/16 inches wide red abrasion contusion with epidermal superficial avulsion upwards.

Dr. Gliniecki described the following evidence of internal injuries:

- There were approximately 350 ml of bloody fluid and a blood clot in the right chest cavity. The left chest cavity contained less than 50 ml of bloody fluid.
- The abdominal cavity was stained with blood, with multiple blood-soaked gauze surgical sponges.
- The lungs were partially collapsed, atelectatic, and subcrepitant.

The brain weighed 1500 grams. The heart weighed 320 grams, and the right and left lungs weighed 770 grams and 850 grams, respectively, with dependent congestion, edema, and postmortem softening. The liver weighed 1050 grams and was red-brown. There was minimal atherosclerosis in the abdominal/thoracic aorta without occlusion or narrowing of the major coronary arteries. There was blood stain within the pericardial sac. There was minimal segmental atherosclerosis of the major coronary arteries without occlusion or narrowing. There was minimal atherosclerosis of the cerebral arteries.
Fluoroscopy, CT scan, and X-rays were performed on the body without an observable significant retained projectile due to through-and-through gunshot wound injuries.

Dr. Gliniecki described the following anatomic summary:

I. Gunshot wound to the abdomen (Gunshot wound #1)
   A. Entry: Right suprapubic region, right lower mid abdomen
   B. Exit wound: Right lateral hip
   C. Projectile: No bullet recovered, through and through
   D. Direction: The wound track passed from left to right, front to back (forty-five degrees angle), and downwards (ten degrees angle).
   E. Range of Fire: Indeterminate
   F. Course, structures perforated, and trauma caused by gunshot wound #1
      - The skin and superficial fascia exhibited perforation, loss of substance, and focal hemorrhage
      - Abdominal wall muscle and fascia (external abdominal oblique muscle and fascia, internal abdominal oblique muscle and fascia, and Transversus abdominis muscle and fascia).
      - Peritoneum
      - Bone (right iliac crest)
      - Iliacus muscle and fascia, tensor fascia lata and fascia.
      - Tensor fascia lata muscle
      - Superficial fascia and skin
      - Bullet Exit
   G. Note: This wound was considered potentially fatal.

II. Gunshot wound to the back (Gunshot wound #2):
   A. Entry: Lower back, lumbar region. Located on the mid-right lower back lumbar region.
      1. No soot
      2. No stippling
   B. Exit wound: Right upper abdominal region.
   C. Projectile: No bullet recovered, through and through
   D. Direction: The bullet was directed left to right (forty-five-degree angle), upward, and back to front (forty-five-degree angle).
   E. Range of fire: Indeterminate

F. Course, structures perforated, and trauma caused by gunshot wound #1
   - The skin and superficial fascia exhibited perforation, loss of substance, and focal hemorrhage
   - Erector spinae muscle and fascia exhibited perforation, loss of substance, and focal hemorrhage.
   - L2 and L3 lateral processes and lumbar vertebrae exhibited fracture, loss of substance, and focal hemorrhage.
   - The psoas muscle and fascia exhibited perforation, loss of substance, and focal hemorrhage.
   - The right lobe of the liver exhibited perforation, loss of substance, and focal hemorrhage. The laceration measured 20 x 9 x 8 cm in maximal diameter.
   - The diaphragm exhibited perforation, loss of substance, and focal hemorrhage.
   - The peritoneum exhibited perforation, loss of substance, and focal hemorrhage.
   - Transversus abdominis muscle and fascia, internal abdominal oblique muscle and fascia, and external abdominal oblique muscle and fascia exhibited perforation, loss of substance, and focal hemorrhage.
   - The upper abdominal wall superficial fascia and skin exhibited perforation, loss of substance, and dermal hemorrhage.
   - Bullet exit.

G. Note: The wound was considered rapidly fatal due to the major injuries to the liver.

Medico-Legal Questions

1. **What were the characteristics and trajectories of the bullets of the gunshot wounds Benjamin Chin sustained?**
   a. **What was Benjamin Chin's body positioning while he was being shot?**
   b. **What was the trajectory of the shots that entered Benjamin Chin's body?**
   c. **What injuries or damages were caused to Benjamin Chin by the gunshots?**

Medicine is a life science, which is evidence based. The practice of medicine is guided by established standards and generally accepted principles, which certified physicians must adhere to. The specialties and the categories of physicians who are proficiently trained, specialized, and competent in the accurate determination of the cause, mechanism and manner of death and the mechanisms of sustenance of lethal trauma are the forensic pathologists, especially for deaths involving all types of trauma and bodily injury. The death of Benjamin Chin involved serious bodily injury.

It is a generally accepted principle and common knowledge in medicine and forensic pathology, that specific traumatic events generate predictable, reproducible, and specific patterns of traumas and injuries. Applying the clinico-pathologic method of differential diagnosis, a specific documented pattern of trauma can be evaluated, translated, and applied to the determination of the mechanisms of generation, causation, and sustenance of the specified trauma pattern, with a reasonable degree of medical and scientific certainty; based on the established common knowledge and generally accepted principles of trauma patterns and their mechanisms of generation, causation, and sustenance.

The patterns of injuries generated by gunshots, firearms and ballistics weapons, and the mechanisms of generation, causation, and sustenance of these patterns of injuries are very well-established in the medical literature and are common knowledge. Based on the prevailing forensic scenario, and on the generally accepted principles and common knowledge of medicine and science, and based on the global constellation, configurations and anatomic conformations of the gunshot wounds sustained by Benjamin Chin, the mechanisms of generation, causation and sustenance of his fatal injuries can be determined with a reasonable degree of medical certainty.

Based on the physical characteristics and physics of ballistics, partially burnt and hot residues of the gunpowder and soot travel behind the bullet when it exits the muzzle, and due to gravitational forces and the differential densities of the bullet, soot, and residues of gunpowder in the gravitational field, the bullet can travel longest, followed by the partially burnt gunpowder residues, which travel longer than soot. Soot will travel for about 1 foot, before it is pulled down by gravitational forces, and the partially burnt gunpowder residue will travel for about 2-3 feet before it is pulled down by gravitational forces. Therefore, if the muzzle of the gun were closer to the skin by less than 1 foot, you would expect to find marginal soot deposits around the gunshot wound of entrance [close range shot]. If the muzzle of the gun were closer to the skin by less than 2-3 feet, you would expect to find powder stippling around the gunshot wound of entrance [intermediate range shot]. If the muzzle of the gun were located greater than 2-3 feet away from the skin ad infinitum, you would expect to find only marginal abrasions around the wound without soot deposits or powder stippling [distant range shot]. If there is an eccentric accentuation of the width of the marginal abrasion, it may suggest that the muzzle of the gun was not located perpendicularly to the skin when it was fired but rather located in the direction of the eccentric accentuation of the marginal abrasion.

The direction of travel of a bullet inside the body can be determined in the three planes of nature with the body disposed in the universal anatomic position, by the systematic dissection of the body and description of the anatomic pathway of the bullet and tissue damages and injuries, correlated with the anatomic topographic locations of the gunshot wound of entrance, gunshot wound of exit or recovery of the bullet.

Based on these common knowledge and generally accepted principles of medicine and science, Benjamin Chin sustained a total of two gunshot wounds of entrance as has been summarized above. Gunshot wound #1 was not immediately fatal. It was a survivable wound because no vital blood vessel, tissue or organ was perforated by the bullet in the pelvis. Gunshot wound #2 was an immediately fatal wound. It was less survivable because it perforated the peritoneal cavity and perforated, contused, and lacerated vital organs, tissues, and blood vessels to cause severe traumatic and hypovolemic shock, which resulted in hypoperfusion of the brain, global hypoxic-ischemic brain injury, brain death, cardiac arrest, and death.

None of the two gunshot wounds of entrance exhibited any marginal soot deposits or powder stippling. This means that the two gunshot wounds sustained by Benjamin Chin were distant range gunshot wounds. The officer(s) who shot Benjamin Chin was not located in close range or intermediate range of Benjamin Chin. The muzzle of the gun(s) that fired the bullets was not located in close range or intermediate range of Benjamin Chin. The officer(s) and the muzzle(s) of the gun that fired the bullets were located greater than 2-3 feet, ad infinitum, away from Benjamin Chin when the gun(s) was fired and killed Benjamin Chin. The two gunshot wounds of entrance described at autopsy revealed only marginal abrasions, without soot deposits or

powder stippling. Benjamin Chin was shot at a distance by the police officer(s), and the gun(s) that fired the bullets was located at a distance from Benjamin Chin. Benjamin Chin was not within close range or intermediate range of the muzzle of the gun(s) or of the officer(s) when he was shot.

For the gunshot wound of the abdomen and pelvis designated as #1 above, the bullet perforated the skin and soft tissues of the right caudal and suprapubic abdomen, perforated the soft tissues and a bone of the right pelvis, and perforated the soft tissues and skin of the right lateral hip to exit. It was therefore a gunshot wound that was not immediately fatal although it caused focalized and regional tissue disruptions and hemorrhages. Such focalized and regional non-vital and non-life-threatening trauma pattern is survivable. The trajectory of the wound was backward, downward, and rightward, situated in a markedly acutely inclined orientation from the right medial suprapubic abdomen to the right lateral hip. In addition, the marginal abrasions exhibited asymmetrical and eccentric accentuations. The officer who fired the bullet that caused gunshot wound #1 was not located directly in front of Mr. Chin and was not located perpendicularly in front of Mr. Chin. The officer was located to the left of the front of Mr. Chin. Mr. Chin was not perpendicularly facing the officer when he was shot. He was not charging at the officer and was not walking directly towards the officer when he was shot. The front of the left side of his body, and the left side of his body were diametrically facing the officer, and the officer shot him from the left side of the front of Mr. Chin from a distance.

The gunshot wound of entrance of the gunshot wound designated as #2 above was located in Mr. Chin's back, in the caudal back, and in the right lumbar back. There were no soot deposits or powder stippling, and the marginal abrasions exhibited asymmetrical eccentric accentuations. The bullet perforated the skin and soft tissues of the right caudal back, perforated, contused and lacerated the soft tissues and organs of the retroperitoneum and peritoneal cavity including the right kidney and the liver, perforated, contused and lacerated the soft tissues and skin of the right anterolateral rostral abdomen and caudal chest. This was an immediately fatal wound, and the mechanism of death was hemorrhagic and hypovolemic traumatic shock from traumatic blood loss and coagulopathy. The trajectory of the bullet was forward, upward, and rightward situated in a markedly acutely inclined regional orientation from the caudal right back to the rostral anterolateral right abdomen and caudal chest. The officer who fired the bullet that caused gunshot wound #2 and killed Mr. Chin was located in the back of Mr. Chin, on the left side of his back. Mr. Chin was not facing the officer; he was not charging at the officer, was not walking towards or advancing at the officer when the officer fired the bullet. Mr. Chin's back was facing the officer when the officer shot him in his back. Mr. Chin was not standing erect on his feet when he sustained gunshot wound #2. In order to exhibit such a markedly and acutely inclined regional orientation and trajectory, more likely than not Mr. Chin was bent over in some manner or was beginning to fall to the ground when he sustained gunshot wound #2. It should be noted that gunshot wound #2 was sustained after Mr. Chin had already sustained gunshot wound #1.

The two gunshot wounds suffered by Mr. Chin were not instantaneously fatal because the mechanism of death of the single fatal gunshot wound was blood loss from tissue disruptions, hypovolemia, hypoperfusion of the brain, global hypoxic-ischemic brain injury, brain death, cardiac arrest, and death. These post-traumatic pathophysiological cascades take time to occur at do not occur at an instant.

The manner of Mr. Chin's death was a homicide. He was shot and killed by other persons. He died in the hands of another. A medical homicide may be deemed as a death that occurs, directly or indirectly, as a result of another person's actions.

2. Did Benjamin Chin experience pain and suffering when he was shot and killed on June 19, 2023, and for how long?

It is a generally accepted principle and common knowledge in medicine and forensic pathology, that specific traumatic events generate predictable, reproducible, and specific patterns of traumas and injuries. The patterns of traumas/injuries generated by blunt force impacts, gunshots, firearms and ballistics weapons, and the mechanisms of sustenance of these patterns of traumas/injuries are very well established in the medical literature and have become common knowledge.

Patho-physiology of conscious pain and suffering
Conscious pain and suffering are initiated by widespread free nerve endings situated in the skin, soft tissues, and organs. Pain can be elicited by multiple types of stimuli classified into three broad categories: mechanical, thermal, and chemical pain stimuli. Nerve endings for pain sensations generate electrical action potentials following contact of any part of the body with an impacting surface and following all types of mechanical tissue damage caused by kinetic energy and blunt force trauma. Similarly, nerve endings for pain and heat sensations generate electrical action potentials following contact of any part of the body with flames and heat and following all types of tissue damage caused by flames and heat. The fundamental mechanism of injury sustenance for gunshots is kinetic energy transference, which causes mechanical destruction of tissues. Action potentials are the sub-cellular physiological basis for noxious conscious sensations and originate from voltage gated sodium and potassium electrolyte membrane pumps in the cell membranes of nerve cells, fibers, and synapses.

It takes a few 10,000^{ths} of a second to generate action potentials. Action potentials are transmitted through nerve fibers to the brain. They are transmitted in peripheral nerves in the Aδ and C fibers for fast and slow pain respectively at impulse rates of 5-30 meters per second and 0.5-2 meters per second, respectively. There is therefore a double pain sensation, a fast-sharp pain, and a slow pain. The sharp pain apprises the person rapidly of imminent danger and prompts the person to react immediately and remove himself from the painful stimulus or imminent danger. The slow pain becomes greater as time passes resulting in continued intolerable pain and suffering prompting the person to continue to try to relieve the cause of the pain and flee from imminent danger.

At autopsy Benjamin Chin measured 69 inches [1.75 meters]. Benjamin Chin felt all types of gunshot induced pain within milliseconds of contact of the bullet with his skin, and within milliseconds of direct blunt force impact and contact of his body with any unyielding surface. One millisecond is one second divided into 1000 parts. For the slowest nervous mechanisms of pain sensation and consciousness, a man like Benjamin Chin felt pain within 100 milliseconds.

Nerve pathways transmitting pain, terminate in the spinal cord. Secondary pathways transmit the pain from the spinal cord to the brainstem and thalamus, especially to the reticular activating system of the brainstem. From the thalamus, tertiary pathways transmit pain to other basal ganglia, limbic cortex, and neocortex of the brain. Pain stimuli are transmitted to the reticular nuclei of the midbrain, pons, and medulla; to the tectal midbrain and the periaqueductal gray

matter. These lower regions of the brain, i.e., brainstem, are vital for the appreciation of the suffering types of pain.

Animals with their brains sectioned above the midbrain, to block any impulse reaching the neocortex and cerebral hemispheres, still experience suffering from pain caused by all types of trauma. Complete removal of the somatosensory regions of the cerebral hemispheres does not preclude an animal's ability to perceive and experience pain. Pain impulses entering the brainstem and lower centers of the human brain can cause conscious perception of pain. Pain perception is principally a function of the lower centers of the brain; however, the upper centers and cerebral hemispheres are responsible for the interpretation of the quality of pain.

The cranial reflex or spinal reflex is the foundational basis for pain and suffering. As long as the cranial nerves or spinal cord are intact, the human being will experience pain and suffering. This is buttressed by the fact that patients with high cervical spinal cord injuries and transections, and quadriplegia still experience pain and suffering in the body distal to the level of the spinal cord injury. Even with the traumatic absence of any connectivity with the upper central nervous system, the cerebral hemispheres and brainstem, a patient will continue to experience pain and suffering driven by the spinal reflex. This is in part why patients who are quadriplegic experience pain and suffering in their bodies below the levels of the spinal cord injury based upon a variety of established pathophysiological mechanisms[2-12]. Therefore, in the absence of any catastrophic spinal cord injury, the principal mechanism of death and cessation of pain and suffering would be brain death from hypoperfusion of the brain or from cardiopulmonary arrest.

One of the factors we consider in the determination of general and case-specific causation is analogy. Is there another disease or trauma entity that is analogous to the case in question? And in this case an analogy is that of spinal cord injuries and quadriplegia. The quadriplegic patient can still experience pain and suffering below the level of the injury, which may include but are not limited to[5]:

1. Nociceptive pain
    a. Musculoskeletal pain
    b. Visceral pain
    c. Other nociceptive pain
2. Neuropathic pain
    a. At-level spinal cord injury pain
    b. Below-level spinal cord injury pain
3. Other pain
4. Unknown pain

Mechanical pain from tissue damage by blunt force trauma and by bullets elicit both the fast and slow pain types. Fast pain is felt within milliseconds while slow pain is felt within about one second. Following mechanical tissue damages, biochemical tissue reactants like bradykinin, serotonin, histamine, prostaglandins, leukotrienes, potassium ions, substance P, acetylcholine, acute phase reactants, and proteolytic enzymes are expressed to elicit sustained secondary biochemical pain in addition to the primary fast pain directly caused by mechanical tissue damages. The biochemical pain elicited by these chemical reactants is a slow type of suffering pain. The intensity of pain is closely correlated with the rate of tissue damage from kinetic energy.

The brain is responsible for and sustains consciousness in human beings. The region of the brain responsible for consciousness is the brainstem. The center in the brainstem, which is responsible for consciousness, is the reticular activating system, which is deeply located in the central regions

of the brainstem. As long as the reticular activating system remains anatomically and electrochemically intact, an individual like Benjamin Chin will remain conscious and will feel pain and experience suffering. The sensation of pain induces conscious suffering since pain is a noxious sensation, which stimulates the neocortex, limbic cortex, and forebrain to cause mental pain and suffering. All these neural processes occur in 1000^{ths} of a second [milliseconds]. The human nervous system is one of the most efficient, effective, and optimal operating systems ever known to humankind. After centuries of empirical research humankind has not been able to fully decipher and reproduce the operating systems of the human brain and nervous system.

The primary mechanisms of death for the types of gunshot wounds Benjamin Chin suffered, as have been described above involved traumatic blood loss, hemorrhagic and hypovolemic traumatic shock, hypovolemia, hypoperfusion of the brain, global hypoxic-ischemic brain injury, brain death, cardiac arrest, and death. The human brain is a post-mitotic organ and can only survive on oxygen and glucose, which are supplied by blood that comes from the heart, primarily in the internal carotid arteries and the vertebral arteries. While the brain is only about 2-3% of the body weight, it receives approximately 15% of the cardiac output at a rate of 750-900 ml/min of blood. The normal range of perfusion of the brain is about 50 to 65 ml/100 g/min [80-100 ml/100g/min for the gray matter and 20—25 ml/100g/min for the white matter, at a rate of oxygen consumption of 3.5 ml/100 g/min. The normal brain tissue partial pressure of oxygen is 35 to 40 mmHg. Brain tissue oxygen levels below 30 mmHg may cause brain tissue injury, and at 20 mmHg, the risk of brain damage becomes exponentially elevated. The threshold for brain infarction is 10-12 ml/100g/min of blood supply with neuronal injury and death beginning in 60 to 180 seconds.

Being a post-mitotic organ, the human brain does not have any reasonable capacity to regenerate itself. This means that when the human brain suffers any type of irreversible injury, that injury is permanent and cannot be reversed or cured by the brain or by medical therapy. There are so many types of brain injuries. Hypoxic-ischemic brain injury due to hypo-perfusion or non-perfusion of the brain gunshot wounds is only one type of brain injury. For the human brain to suffer irreversible hypoxic-ischemic brain injury, there has to be an impaired supply of oxygen and blood to the brain. The established and generally accepted median or mean reference threshold for irreversible hypoxic-ischemic brain damage to occur is 3 to 5 minutes in cumulative time. This means that irreversible brain damage can occur in less than 3 minutes or in more than 5 minutes, but with a mean or median time of close to 3 to 5 minutes.

Pain is a basic, vegetative, and primitive human reflex with a primary objective of alerting the person to remove himself from imminent danger. Given that pain is a primitive reflex, patients who are alive but are suffering from a disorder of consciousness still experience pain and suffering. There is no rigid demarcation between consciousness and unconsciousness. It is a continuum or spectrum of physiological functioning, however, there are broad varying degrees of disorders of consciousness with broad varying degrees of pain and suffering physiology and biochemistry[13-16]. We cannot reasonably differentiate or quantitate the degree of pain and suffering; rather it is a qualitative question of whether a person experiences pain or not. Therefore, pain and suffering are present in all persons with disorders of consciousness and should be adequately treated[14,17-20]. In the non-communicative, unconscious patient, the most relevant aspects of response to pain are physiologic (i.e., modification in the vital parameters such as heart rate and respiration) and behavioral (i.e., modification in the facial expression, motor and visual response)[21-23].

Benjamin Chin's conscious pain and suffering

The terminal trauma event which resulted in the violent death of Benjamin Chin began at about 11:36 a.m. on 06/19/2023 when Benjamin Chin first encountered the police. At this time, more likely than not, Benjamin Chin was fully conscious and aware of his surroundings with a GCS of 15/15. He was not suffering from any known neurological disease or drug intoxication that may have impaired his capacity to process noxious stimuli and experience the full spectrum of pain and suffering. Pain and suffering moreover are primitive autonomic reflexes of humankind. Patients who suffer neurological diseases like delirium, neurosis, psychosis and dementia and all forms of cognitive impairment, congenital and acquired intellectual disabilities and autism spectrum disorders still possess the autonomic capacity for primitive reflexes like pain and suffering, thirst and hunger and fear.

His reticular activating center was completely intact and functional. As a 30-year-old adult male he had the mental capacity and learned behavior to identify and classify the presence of the police officers, their guns and weapons, the noises of the police sirens, the visual effects of the police lights, the firing and explosive noises of the gun(s), and the bullets hitting him as imminent dangers and threats to his life.

At this time, the brainstem nuclei, the frontal cortex, pre-frontal cortex, basal forebrain, and limbic cortex of Benjamin Chin's brain initiated, within 10,000th of a second, action potentials, which initiated within milliseconds, the primitive human reflexes of fright, flight, and fight. This mental awareness of imminent danger initiated the nor-adrenergic and adrenergic biochemical neural responses of fear, fright, and flight, when the locus ceruleus of the brainstem released large amounts of noradrenalin to the cerebral hemispheres. This fear, fright and flight adrenergic response caused high levels of mental pain and suffering. His heart started pumping faster [chronotropic effect] and stronger [ionotropic effect] due to the nor-adrenergic/adrenergic response. His respiratory rate and general muscle tonicity increased as well due to the nor-adrenergic/adrenergic response. His gastrointestinal system increased bowel peristalsis and acid secretion in the stomach. All these patho-physiologic processes culminated in high levels of conscious mental pain and suffering, which resulted in attendant somatic and biochemical pain and suffering as a result of the body's pathophysiological and biochemical responses to mental pain and suffering. The fear, fright and flight autonomic response prompted him to flee from the police. Firing the guns generated loud blast noises which instigated mechanical ossicular noxious stimuli and pain from transmission of such loud noises.

The various domains of his brain and cerebral functioning were intact and identified the imminent danger within 1000^{ths} of a second. His limbic system instigated high levels of primitive adrenergic fright-flight-fight response, which caused high levels of mental, somatic, and biochemical pain and suffering.

When Benjamin Chin was shot, the forces of the bullets and the cranial and spinal nerve reflexes made him fall to the ground and he impacted different regions of his body on the roadway. He suffered additional multiple blunt force impacts and trauma of his body, some of which caused discernible abrasions and contusions of his body.

Benjamin Chin suffered gunshot wounds and blunt force trauma. Each gunshot wound, and each impact initiated multimodal transfer of kinetic energy to his body. At this time, Benjamin Chin experienced physical and mechanical somatic pain caused by the constellation of gunshot wounds and blunt force impacts. Numerous nerve endings in his skin and tissues were activated, and elicited millions of pain action potentials, which were transmitted to the spinal cord and brain to

cause conscious somatic pain, which caused conscious somatic suffering, which in turn elicited novel mental and biochemical pain and suffering, which synergized with the previously existing mental, somatic and biochemical pain and suffering. The biochemical cycles and systems in his body expressed acute reactant proteins and peptides in response, which sustained biochemical pain and suffering, and further accentuated his global conscious mental, somatic and biochemical pain, and suffering.

Following the gunshots, the bullets traveled through air, hit, and perforated Benjamin Chin's body. When the bullets perforated Benjamin Chin's skin, soft tissues, organs, and skeleton they transferred high levels of kinetic energy[6] and thermal energy to the tissues causing mechanical tissue damages and destruction, which activated thousands to millions of nerve endings and action potentials. She experienced more somatic pain and suffering with the attendant and accompanying mental and biochemical pain and suffering within 100 milliseconds of sustenance of his gunshot wounds.

The bullets perforated and damaged the skin, soft tissues, skeleton and viscerae which have been described above. Perforations, contusions and lacerations of soft tissues, blood vessels and visceral parenchyma precipitated soft tissue and cavity bleeding, which eventually resulted in acute decompensation of the vascular pressure, acute cardio-pulmonary arrest, and cerebral hypoperfusion. The constellation of these injuries resulted in acute traumatic shock, which in turn activated millions of nerve endings and action potentials, generated more and higher levels of somatic and biochemical pain and suffering combined with the attendant mental pain and suffering in response.

The multimodal transfer of kinetic energy, including the gunshot wounds and the multifocal blunt force impacts of different regions of his body induced physical and mechanical somatic pain and suffering, accompanied by attendant mental and biochemical pain and suffering. Action potentials were transmitted to the spinal cord and brain to cause high levels of composite conscious pain and suffering. Given the large amounts of kinetic energy a bullet generates, and the matching degree of tissue damage and destruction, the levels of pain and suffering were expectedly high-scale. At this time, the novel mental, somatic and biochemical pain and suffering synergized with the pre-existing and continuing mental, somatic, and biochemical pain and suffering. This synergism caused increasingly higher levels of pain and suffering.

Benjamin Chin continued to experience pre-death mental, somatic, and chemical pain, and suffering, as the cascades of biochemical pain and suffering were intensifying his pain and suffering. Within milliseconds of his trauma, the biochemical cycles and systems in his body began to express acute reactant proteins and peptides in response to the high levels of traumatic stress, which elicited novel chemical pain and suffering, and further accentuated his global conscious pain and suffering.

During this time, his traumatic and hypovolemic shock progressed and began to cause hypoxic-ischemic brain injury. The attendant pathophysiological and biochemical responses of the body including but not limited to systemic inflammatory response, enzymatic, proteomic, and biochemical cyclic responses and expression in addition generated more and novel biochemical pain, which added to and accentuated the global pre-death mental, somatic, and biochemical pain Benjamin Chin was experiencing.

[6] A bullet traveling at a linear velocity of over 1200 feet per second possesses large amounts of kinetic energy.

As he continued to suffer the sequelae of his trauma, traumatic shock progressed, and he began to lose his orientation and consciousness. He began to pass through the levels and spectrum of consciousness with diminishing sensorium. He was shot at about 11:45 a.m. After he was shot, he fell to the ground and lay on the ground until officers approached and reached him at about 11:47 a.m. when he was noted to move his head and neck in response to the officers. He was admitted into the ER at 11:59 a.m. and received multifaceted medical and surgical treatments and interventions including emergent thoracostomies and laparostomies. After his first emergency surgery he developed traumatic coagulopathy and his traumatic shock continued. He was returned to the operating room for re-exploration. He eventually succumbed to his injuries and was pronounced dead at about 11:09 p.m. on 06/19/2023. Upon arrival at the ER at about 11:59 a.m. his GCS was noted to be 3/15. As part of his traumatic shock, he developed shock bowel with infarction and underwent bowel resection. His liver lacerations and contusions were debrided and removed, and his injured right kidney was also resected.

As has been stated above, the specified trauma-induced mechanisms of death instigated by his fatal gunshot wound do not result in instantaneous death. Such mechanisms of death take time to occur and eventually result in death. Benjamin Chin did not die at the instant he sustained gunshot wound #1 or #2. Also, as has been stated above, the standard reference time interval for the sustenance of such fatal gunshot wounds and irreversible brain damage is about a mean of 3 to 5 minutes. Therefore, after Benjamin Chin was shot, he began suffering the patho-physiological consequences, cascades, and sequelae of his wounds, which culminated in irreversible brain damage, coma, and eventual death.

It is pertinent to note that after he was shot Benjamin Chin did not receive immediate medical assistance for several minutes while he lay on the roadway. According to the American Heart Association, every one-minute delay in providing medical aid and cardiopulmonary resuscitation decreases the risk of survival by 7-10%[7]. According to the American Heart Association, immediate CPR increases a patient's chances of survival by over 200-300%[8]. It is also pertinent to note that the primary and fundamental prognostic factor in fatal exsanguination is a timely intervention[9,10,11]. It is also vital to note that one of the most preventable causes of death in trauma patients is exsanguination as we, in part, have in this case[12,13,14]. This is because the mechanisms of death for exsanguination involve the delayed pathophysiological mechanisms of hypoxic-ischemic brain injury, which can take from 3-5 minutes to over 45 minutes to one hour to occur depending

[7] Every Second Counts - AED fact sheet 2013 - Final (heart.org)
[8] CPR Facts and Stats | American Heart Association CPR & First Aid
[9] Hemorrhage - StatPearls - NCBI Bookshelf (nih.gov)
[10] Huber-Wagner S, Qvick M, Mussack T, Euler E, Kay MV, Mutschler W, Kanz KG; Working Group on Polytrauma of German Trauma Society (DGU). Massive blood transfusion and outcome in 1062 polytrauma patients: a prospective study based on the Trauma Registry of the German Trauma Society. Vox Sang. 2007 Jan;92(1):69-78. doi: 10.1111/j.1423-0410.2006.00858.x. PMID: 17181593.
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on a multiplicity of metabolic factors[15,16]. Such a delay in rendering medical aid and assistance significantly contributed to Mr. Chin's pain and suffering.

In spite of his gunshot wounds, Benjamin Chin's brain and neural axis remained functionally intact. His spinal nerves and nerve roots, and spinal reflexes remained intact. His subcortical ganglia and brainstem nuclei of the cranial nerves remained intact. His reticular activating system remained electrochemically intact. The distinctive anatomy of his injuries enabled him to continue to experience increasingly higher levels of somatic pain and suffering, mental pain and suffering, biochemical pain, and suffering.

As he received medical and surgical treatments and interventions, the secondary traumatic sequences of his injuries progressed as he lost blood. Traumatic shock, hemorrhagic shock, acute cardio-respiratory arrest, and hypoxic-ischemic cerebral injury persisted. As he continued to suffer the sequelae of his injuries, he progressed into deeper levels of traumatic and hypovolemic shock, as he developed more severe and advanced stages of acute respiratory arrest, acute cardiac arrest, cerebral hypoperfusion and cerebral hypoxic-ischemic injury. Traumatic shock and composite biochemical acute responses to injury progressed to multi-organ-system failure before he died.

As has been stated above, the human body continues to experience debilitating trauma-induced and physiologic chemical pain and suffering until there is a complete cessation of all bodily functions and death. The patient who suffers a disorder of consciousness remains in a state of high human suffering especially due to biochemical pain and suffering because of the ongoing biochemical and molecular responses and systems in the body, especially in response to traumatic shock.

In fact, one of the clinical tests for the evaluation of the depth or severity of unconsciousness is to intentionally inflict somatic pain to an extremity of the unconscious patient and observe the patient to see if he withdraws his extremity from the source of pain, moans, or grimaces. Again, this is one of the medical reasons why the majority of unconscious patients in the intensive care unit of hospitals are on strong pain medications and narcotic analgesics like Morphine and Fentanyl although they are in a coma. This is also why the lowest score for the Glasgow Coma Scale is 3/15 and not 0/15, and in part why analgesics and narcotic analgesics are given to patients who are under anesthesia and are components of drug panels and cocktails used for anesthesia.

As the case of Benjamin Chin shows, although loss of consciousness and death are frequently immediate, they are rarely instantaneous since loss of consciousness and death are processes that involve cascades of patho-physiologic events. The adjective "immediate," within a forensic context, and within the prevailing forensic scenario in this case should be interpreted as death occurring as a result of gunshot wounds without the intervention of another novel or independent object, cause, or factor. It should not be forensically construed as instantaneous.

Based on the global prevailing forensic scenarios in this case and based on the generally accepted principles and common knowledge of medicine and science, including the central limit theorem, Benjamin Chin experienced the highest levels of high-scale conscious somatic, mental, and biochemical pain and suffering which correspond with, and were caused by the serious bodily

[15] Hall, John E. 2015. Guyton and Hall Textbook of Medical Physiology. 13th ed. Guyton Physiology. London, England: W B Saunders.
[16] DiMaio, V.J.M., & Molina, D.K. (2021). DiMaio's Forensic Pathology (3rd ed.). CRC Press. https://doi.org/10.4324/9780429318764

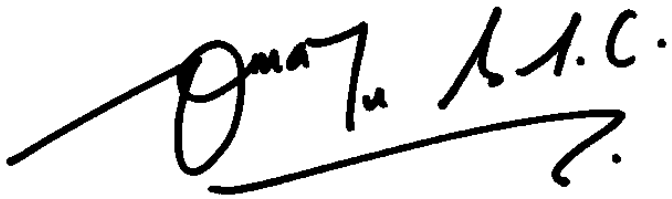
injuries he suffered. His conscious mental, somatic and biochemical pain and suffering began at about 11:36 a.m. when he first encountered the police, continued through the time he was shot at about 11:45 a.m. and through the onset and sustenance of his traumatic shock, ending at about 3-5 minutes after he was shot and began suffering global hypoxic-ischemic brain injury, for a composite mean, mode and median period of less than 14 minutes[17,18]. He was transferred to the hospital and was eventually pronounced dead at about 11:09 p.m. on 06/19/2023. He suffered pre-death pain and suffering for a mean, mode, and median period of less than 12 hours [11 hours 27 minutes] beginning from 11:36 a.m. and ending at 11:09 p.m.[19,20].

I have provided all my opinions and conclusions with a reasonable degree of medical certainty.

I reserve the right to amend, supplement, revise and/or modify my opinions and report, up and to the time of trial, should additional information become available.

Thank you.

Very truly yours,



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[17] Medicine is not an absolute science, and these estimated ranges should not be interpreted as absolute quantitative estimations of time. Quantitative ranges of any measurable index are common practice and are the standard of practice in pathology and medicine in part based on the principles of the central limit theorem.
[18] Human events like loss of consciousness and death involve a continuum of pathophysiological events on the cellular and gross functional levels without any identifiable rigid transitions or demarcations. Therefore, the determination of the time of occurrence of these events are guided by the time the events have been reproducibly and quantifiably confirmed. For example, the time of death of any individual is determined by the time the individual was pronounced dead by a designated medical professional who has clinically assessed the patient and confirmed the patient to be dead based on prevailing, reproducible and quantifiable clinical evidence that the patient was dead.
[19] Medicine is not an absolute science, and these estimated ranges should not be interpreted as absolute quantitative estimations of time. Quantitative ranges of any measurable index are common practice and are the standard of practice in pathology and medicine, in part based on the principles of the central limit theorem.
[20] Human events like loss of consciousness and death involve a continuum of pathophysiological events on the cellular and gross functional levels without any identifiable rigid transitions or demarcations. Therefore, the determination of the time of occurrence of these events are guided by the time the events have been reproducibly and quantifiably confirmed. For example, the time of death of any individual is determined by the time the individual was pronounced dead by a designated medical professional who has clinically assessed the patient and confirmed the patient to be dead based on prevailing, reproducible and quantifiable clinical evidence that the patient was dead.

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